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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/574,758	06/20/2008	Aviram Tam	40006317-0087-002	2213

7590 08/11/2010
Patent Counsel
Applied Materials , INC.
P.O. BOX 450A
SantaClara, CA 95052

EXAMINER

BERMAN, JACK I

ART UNIT	PAPER NUMBER
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2881

MAIL DATE	DELIVERY MODE
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08/11/2010

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/574,758	Applicant(s) TAM, AVIRAM	
	Examiner Jack I. Berman	Art Unit 2881	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-30 is/are pending in the application.
 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-30 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 05 April 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date <u>10/12/06, 4/16/10</u> . | 6) <input type="checkbox"/> Other: ____. |

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The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

Claims 1-6, 9, 13-18, 21, 22, and 24-28 are rejected under 35 U.S.C. 102(a) as being anticipated by Mitsui (U. S. Patent Application Publication No. 2003/0059104). Mitsui discloses a method, comprising: providing a measurement model that comprises measurement image information (paragraph [0041]); locating a measurement area by utilizing the measurement image information (paragraph [0043]); and performing at least one measurement to provide measurement result information (paragraph [0047]), as claimed in claim 1. At paragraphs [0006] and [0007], Mitsui teaches that the method is used with a measurement system comprising: a scanner for scanning an measurement area with a beam of charged particles; a detector, positioned to receive charged particles resulting from an interaction between the measurement area and the beam of charged particles and to provide multiple detection signals; and a processor, adapted to process detection signals and to control the scanner, whereas the measurement system is adapted to receive a measurement model that comprises measurement image information (paragraph [0041]); locate a measurement area by utilizing the measurement image information (paragraph [0043]); and perform at least one measurement to provide measurement result information (paragraph [0047]), as claimed in claim 13, and to generate a measurement model that comprises measurement image information; to locate a measurement area by utilizing the measurement image information (paragraph [0043]), and to perform at least one measurement to provide measurement result information (paragraph [0047]), as claimed in claim 21. As Mitsui

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explains in paragraph [0047], the measurement mode comprises and is responsive to edge and measurement information, as claimed in claims 2-5, 14-17, and 24-27, and involves the measurement of at least one feature (line pattern P2), as is claimed in claims 6, 18, and 28. At paragraph [0042], Mitsui teaches that the method comprises generating measurement image information from an SEM image, as claimed in claims 9 and 22.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 7, 11, 12, 19, and 29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mitsui in view of Lee et al. (U. S. Patent Application Publication No. 2002/0110278). Lee et al. discloses a measurement method utilizing measurement model information (structure-guided measurement method), as discussed at paragraphs [0017]-[0019] in the reference, and teaches at paragraphs [0030], [0059], and [0065] that the measurement method should comprise measuring a relationship between multiple structural elements within the measurement area, as claimed in claims 7, 19, and 29. At paragraphs [0031] and, as an example, paragraph [0139], Lee et al. teaches to repeat a stage of generating a measurement model until one or more criteria are fulfilled, as claimed in claims 11 and 12. It would have been obvious to a person having ordinary skill in the art to use the Lee et al. as the measurement method required by the Mitsui evaluation method in order to achieve the increased accuracy discussed by Lee et al.

Claims 8, 20, and 30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mitsui in view of Oh et al. (U. S. Patent Application Publication No. 2003/0086616). At

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paragraphs [0020] and [0094]-[0120], Oh et al. teaches that locating of an area of interest during a semiconductor manufacturing process can be achieved by applying image processing. Since the Mitsui method is described as being for use in evaluating semiconductors, it would have been obvious to a person having ordinary skill in the art to locate a measurement area required for the evaluation process by applying image processing in the manner taught by Oh et al., as claimed in claims 8, 20, and 30. It would also have been obvious to a person having ordinary skill in the art to accelerate the locating process by first locating a vicinity area that comprises the measurement area so that the image processing step is only performed in an area known to contain the measurement area. It is common sense to only perform a detailed search for a particular area, such as the search performed by image processing, in a vicinity area where there is the possibility of finding that area.

Claims 10 and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mitsui in view of Saito (U. S. Patent Application Publication No. 2003/0126566). At paragraphs [0070] and [0071], Saito teaches to use CAD information to generate measurement image (reference image) information for purposes of evaluating a semiconductor device in a scanning electron microscope (SEM) that comprises a scanner (deflector 36) for scanning an measurement area with a beam of charged particles (electron beam EB); a detector (41), positioned to receive charged particles resulting from an interaction between the measurement area and the beam of charged particles and to provide multiple detection signals; and a processor (central processing unit 32) adapted to process detection signals and to control the scanner. It would have been obvious to a person having ordinary skill in the art to use Saito's measurement image generated by CAD information as the pattern edge model referred to at paragraph [0041] in Mitsui since

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the Mitsui and Saito methods are both disclosed as methods for measuring features on semiconductor devices in SEMs and Mitsui only mentions that the pattern edge model is “previously produced” without explaining how it is produced.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jack I. Berman whose telephone number is (571) 272-2468. The examiner can normally be reached on Monday-Thursday (8:30-7:00).

If attempts to reach the examiner by telephone are unsuccessful, the examiner’s supervisor, Robert H. Kim can be reached on (571) 272-2293. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Jack I. Berman/
Primary Examiner, Art Unit 2881

jb
8/10/10